Necessary Water For an Acre

Some Figures On the Requirements In This Section

ADDING up the minimum amounts of water assumed as necessary for irrigating the different crops raised in this region, and taking the average, we find that 21.6 acre-inches of water is sufficient. Consequently, if we are allowed 24 acre-inches of water per acre each year, for the upper and lower valleys as a whole, it should give every farmer an ample supply. It is probable as well, that with the land better leveled than is now the practice, with better laterals, and more cultivation, the duty of water will be materially increased.

The New Mexico station determined that the largest yield of wheat was obtained when a depth of 24 inches of water was applied to wheat and 39 inches to alfalfa, five cuttings being secured during the season, also that water in more frequent and smaller irrigations gave slightly the larger yield of hay.

Averaging Crops Grown.

Averaging the results obtained from crops grown with well water during the season of 1904, the following results were secured:

Depth of water applied: Alfalfa, 36.4; wheat, 26.6; corn, 25.2, and sweet potatoes, 17.6 inches.

Cost of pumping per acre: Alfalfa, $10.50; wheat, $9.80; corn, $6.92, and sweet potatoes, $4.91. The equipment for pumping consists of a 30 H. P. steam engine and a 6-inch centrifugal pump.

Cost of applying the water per acre: Alfalfa, $1.23; corn, 85 cents, and sweet potatoes, 64 cents.

The yield per acre: Alfalfa, 2.33 tons; corn, 31.9 bushels, and sweet potatoes, 10,000 pounds.

The value of the crop per acre: Alfalfa, $35.03; wheat, $18.09; corn (including the stover), $36.27, and sweet potatoes, $170.

In an experiment at Tulare, California, the maximum amount of water applied to wheat was 24 inches and the yield increased with the quantity of water; in another experiment, in which the maximum was 27 inches, the maximum yield was secured with 18 inches, the decrease from this maximum due to the use of 27 inches being 50 percent. It is assumed, therefore, that 18 to 24 inches is the best amount of water to apply to wheat under the existing conditions.

Yields of Barley.

With barley at Tulare, the maximum yield was secured from the use of 18 inches, the minimum from the use of 27 inches. Consequently, barley and wheat require about the same amounts of water, or 18 to 24 inches for the best results.

At California, the following was found to be true of shallow and deep irrigation.

Shallow Irrigation Advantages.

(1). The top layer of soil is better aerated and more granular.

(2). It contains, as a rule, the largest amount of available plant food.

(3). It costs less for furrowing and cultivation.

(4). Artificial fertilizers are more easily applied to the top soil.

Disadvantages.

(1). Shallow irrigation wastes water by excessive evaporation.

(2.) It lures the fibrous roots near the surface to wilt, or kills them by subsequent drouth.

(3). It tends to form an irrigation hardpan or plow sole.

(4). It restricts the feeding ground of the roots of trees.

(5). It calls for more frequent applications of water.

(6). Frequent irrigations bake or harden the surface and necessitate cultivation.

Deep Irrigation Advantages.

(1). It conserves the moisture by checking evaporation.

(2). It distributes the water throughout the subsoil.

(3.) By moistening the subsoil it tends to the deep rooting of trees.

(4.) Deep rooted trees have a larger supply of plant food within reach.

(5). Deep rooted trees are not so injuriously affected by drouths.

(6). Deep rooted trees require less artificial fertilizers.

(7). Deep irrigation requires less frequent application.

(8). Deep cultivation and irrigation will break up the plow sole.

Disadvantages.

(1). The extra cost of furrowing and cultivation.

(2). Deep irrigation requires a correspondingly deep placing of fertilizer.

(3). Deep furrowing may injure shallow rooted trees.

Assuming that 24 inches of irrigation water is applied to lands in the Rio Grande valley annually, then each acre would receive 5,438,000 pounds of water. Taking the average composition of the river water and the average of the amount of sediment carried during the year from June to November, 89.7 pounds of potassium sulphate would be added from the water itself, and 81, 309 pounds of sediment which would make a dry layer of about a quarter of an inch in thickness. The average composition of this sediment was found to be 1821 pounds of potassium sulphate, 116 pounds of phosphoric acid and 107 pounds of nitrogen.

Water from Elephant Butte.

The Elephant Butte dam will impound 2,250,000 acre feet; and when once filled, the reservoir will hold enough water to irrigate 110,000 acres in New Mexico, 45,000 in Texas and 25,000 in Mexico for three years, even though no more water should flow into it during this time.

Danger Of Dodder In Alfalfa

By W. L. Rockwell, U. S. Dept. Agriculture

MUCH care should be exercised to prevent the presence of dodder in alfalfa fields. Once it gets a start, the mowing, raking and hauling tend to spread and scatter the centers of infection until the whole field is choked out.

The New York experiment station at Geneva thus describes the results of dodder in alfalfa:

"Dodder is a yellow, thread-like twining weed which is exceedingly troublesome in alfalfa fields. It appears in circular spots 3 to 30 feet in diameter. At the center of the spot the alfalfa is killed out, while around the margin the ground is covered with a mat of yellow threads which twine closely about the stems of the alfalfa plants and slowly strangle them. The spots increase in size from year to year. Many fields have been completely ruined by dodder. It is not often injurious to other crops (except red clover), but once established in an alfalfa field it is very difficult to eradicate without killing the alfalfa."

Dodder in alfalfa is usually introduced with the seed, and too great care cannot be exercised in obtaining seed that is free from this noxious weed. It is often true that neither the seller nor the purchaser is sufficiently well acquainted with the appearance of alfalfa seed to detect the presence of foul seeds, hence its appearance in the field is often the first intimation the grower has that there was dodder in his seed. It may be difficult to obtain clean seed and in any case it is a wise precaution to purchase seed by sample and have same examined. This will be done without charge by the botanist, A. & M. college, College Station, Texas.

Alfalfa seed is larger than that of dodder and advantage has been taken of this to get rid of the weed. Farmer's Bulletin No. 353, page 255, thus describes the method of sifting out the dodder seed: "It has been found that dodder seeds are readily removed by sifting through a wire sieve having 20 meshes to the inch. Since ready-made sieves of this mesh are not readily obtainable, it is advised to construct a light, wooden frame 12 inches square by three inches deep and tack over the bottom of it 20 by 20 mesh steel wire cloth of No. 34 Washburn & Moen gage wire. This quantity of cloth ought not to cost more than 15 or 20 cents. In case brass or copper wire cloth is used the wire should be No. 32 on the English gage. It is important that the wire used be exactly 20 by 20 mesh, which may be determined by placing a ruler on the sieve or cloth and counting the number of spaces to the inch. With a sieve of this kind it is estimated that a man can clean from three to seven bushels of alfalfa seed per day. From one-fourth to one-half pound of seed, and no more, should be put into the sieve at one time and vigorously shaken for one-half minute. To make the work uniformly thorough the use of a cup holding not over one-half pound of seed and careful timing of the sifting may answer, but when much Dodder is present, and particularly if, of the large seeded kind, two siftings, both made strictly as directed, are advised.

In experimenting with this method it was observed that besides the dodder seeds various other small weeds, broken seeds, and dirt, as well as the smaller alfalfa seeds, were also removed by sifting. The siftings varied from about one to five pounds per bushel, according to the original cleanness of the seed and the thoroughness of sifting. The rejection of the siftings is considered as causing but little if any loss."

How To Get Best Results In an Irrigated Field

By W. L. Rockwell, U. S. Dept. Agriculture

COMPETITION is today entering into every line of endeavor. The present day farmer is in competition with every other tiller of the soil the world over. In manufactured products the most successful producer is he who most nearly meets the demand of the time in that line of article. He must produce a good article—first class—for the purchasing public is rapidly learning to ask and demand only a first class article. Last, but not least, he must deliver it to the purchaser in form to please and thus create a demand.

It is to the farmer's interest to produce for each dollar invested the largest possible amount of first class product from the unit area, not necessarily the largest crop, but the largest yield possessing the form, size and flavor that the market demands. In order to obtain from the field or orchard the largest return of the first quality of product, it is necessary that as many as possible of the favorable conditions be present and any unfavorables ones reduced to a minimum.

Fertilizing the Land.

First, the soil should contain in plenty the elements, mineral and vegetable, that enter into and make up the plants to be grown. This, when referring to the Rio Grande valley lands, signifies for all ordinary crops the necessity of the addition to the soil of large quantities of vegetable matter.

These soils cannot be called poor, still they are deficient in humus, having been brought down as silt by the waters of the Rio Grande from the mountain slopes of Colorado and New Mexico, sections almost bare of vegetation. This humus may be obtained by the use of all available barnyard compost and by adding to it by planting legumes as second crops in summer or autumn and turning under while still green. For the fertilization of orchards the proper commercial fertilisers should be used.

Preparing the Soil.

Make the soil ever so rich, still it will not produce the largest return unless properly prepared. This is especially true under irrigation. The loams and clays should be deeply plowed and thoroughly stirred once each year, and later the surface for a depth of from two to six inches, depending upon the variety of crop grown, kept in a thoroughly mulched condition. This allows the admission of air, necessary for the preparation of plant food, and prevents the loss of moisture by evaporation, and the consequent rise of the injurious salts.

The surface of the field should be carefully and thoroughly leveled to uniform slopes, and the ditches properly located and constructed so that the water will flow evenly away from them. Do not attempt to do this without a level. No man can lay out such work as well without as with an instrument, much less so an inexperienced person.

Irrigations and Cultivation.

Do not attempt to run your water too far from the ditch. The most experienced limit the furrow and check from two to six hundred feet. The nature of the soil and the slope will determine within these limits. Do not use too much water. Irrigate in such manner that you can cultivate quickly afterward, thus preventing the baking and cracking of the surface with the excessive loss of moisture following. Cultivate lightly at first, then follow with a deeper stirring and so GALLEY EIGHT ..½ ½0. ETAO AOR continue, not allowing at any time the formation of a crust.

Keep Ditches Clean.

Keep your ditch banks as well as your fields and orchards clean of weeds. Every weed is robbing your soil of both plant food and moisture and bringing you no return. Weeds and grasses increase the loss of moisture by evaporation from two to three fold over that from a clean, thoroughly mulched surface. If a cover crop is desirable, grow something that you can cultivate, and that will build up rather than destroy the fertility of your soil. The irrigation company should clean and keep clean all its canal levees, for the farmers cannot keep their fields free from foul growth so long as the canal company allows foul plants to seed upon its levees, the seed to be carried by the water to the fields.

Pointers of Value.

Then whatever you grow, produce a product that is first class.

Put it on the market in the best form, and thus create a demand for your brand.

In the main grow staples, diversify in the crops the returns from which on account of product and price are more unsteady.

Save and use the barnyard fertilizers on the farm, add to these by growing and turning under of the legumes. Build up your soil. None is so good that it cannot be improved.

Locate and build your ditches right. Level your land thoroughly.

Give your crop plenty of moisture, but use the water economically. An excess is harmful in many ways.

Cultivate early thoroughly and continuously.

Don't let the weeds steal your profits.

"Egyptian Wheat" Yielding 250 Bushels Per Acre Annually

(Written Especially for The El Paso Herald by Prof. Frederick W. Mally, Texas State Entomologist and Nursery Inspector.)

Egyptian wheat is not a wheat; in fact it is a member of the sorghum family and is more properly called shallu. However, it is known under the common names of Egyptian wheat, California wheat and Mexican wheat. It grows very luxuriantly and, when drilled in rows 3 1-2 feet apart and given proper cultivation and irrigation, it is possible in some districts of the Rio Grande valley to produce three cuttings.

With a rich, fertile soil, proper preparation and cultivation of the land, and a well directed irrigation, this crop, I fully believe, can be made to produce an annual yield of 250 bushels or over of grain per acre.

100 Bushels From First Cutting.

I saw several small fields in the Rio Grande valley last season which certainly must have yielded crops of 100 bushels of grain for the first cutting. The stalk of Egyptian wheat is smaller than sorghum, though not so sweet. It produces an abundant growth of foliage, which is well suited for forage; in fact, live stock eat both the foliage and stalk much better than most any of the sorghums, except the sweet sorghums.

Possibilities for Stock Feeding.

In the El Paso district, I feel confident it will be possible to produce more than two cuttings annually. In that case, under a proper system of irrigation and on fertile soil, shallu will probably produce 150 or 200 bushels of grain per acre in the El Paso section. Without irrigation, under a system of dry land farming, shallu will produce from 40 to 60 bushels of grain per acre on a fertile soil. Under the dry land farming system, the growers should use at the rate of from six to eight pounds of grain per acre in the drills, with drills 3 1-2 feet apart.

How to Plant.

Shallu sprouts very freely. In the El Paso valley, under irrigation, it would be well to use from 10 to 12, or even 15 pounds of seed per acre, with rows 3 1-2 feet apart. In the Rio Grande valley district, probably not to exceed 15 pounds, where irrigation is the method of farming.

Get the Best Seed.

The seed in each case should be tested and found to be of high germinating quality before planting. The quantities above given are based on choice seed, of high germination. Any of the leading California, Texas or Kansas seed houses can furnish this seed, at least in small quantities.

Shallu is a very drouth resistant, heat resistant crop. It also matures quickly and is an excellent feed for all kinds of livestock, both as to its grain, as well as its forage. It is a crop that is well worth testing in the El Paso valley, or any arid or semi-arid district.

WILL PAY HOMAGE TO KING OF FRUIT

Spokane's Third Apple Exhibit Promises to Be Best Yet Held.

Spokane, Wash., Nov. 5.—Fruit has been the salvation of the northwest. It has made fortunes for thousands and brought independence or a lucrative living to millions. The fertile soil of this vast tract produce each year fruit howhere else equaled in quality, profusion or size.

Notable among the products of this territory is the apple crop. Nowhere perhaps, in the world, are apples brought to the degree of excellence they attain here and it is in an endeavor to maintain the high standard that the apple growers of this vicinity contribute each year to a national apple show.

The third annual exploitation of King Apple will take place in this city on November 14-19. Twenty thousand dollars is the aggregation of the prikes which will reward contestants in every possible branch of the industry.

One of the unique features will be a series of apple packing contests for county, state, national and international championships, with suitable trophies and cash premiums to the winners. It is expected that many of the cracks in Washington, Oregon, Idaho, Montana and other states, possibly Colorado and California, will enter.

"It costs the people of Spokane fully $25,000 a year to maintain the institution," said Ren H. Rice, secretary and manager of the organization.

"The first show in 1906 cost $41,000, while the expense of the 1909 exposition, which was much larger, the display space occupying an area of three and a half acres, was $42,000.

"The people of Spokane look upon these contributions as an investment in a project, which is designed to develop the apple industry, not only in the northwestern states and provinces, but all over the continent; encourage perfection in growing and fix a standard for commercial apples. Another purpose is to bring the growers of the various districts together for the interchange of ideas.

"More than 1,000,000 apples were shown in 1908, while in 1909 there were 1,526,331. There will be more than 2,000,000 apples entered in the various contests next November."

AGRICULTURAL CLUB HEARS GOOD TALKS

Agricultural College, N. M., Nov. 5.—The Agricultural club meeting was held in Wilson hall and a useful program was rendered. Wheat raising, by Wm. Knoor, was the main topic of the evening. The papers included Soil Physics Experiments at This Station, by Prof. Willard, and Current Agricultural News, by Ansel Gardiner.

The meeting was thrown open for discussion and some interesting figures were brought out. Prof. Squires, hed of the Agronomy department, stated that the department was just completing the results of the variety tests on wheat, carried on this summer by his department, and that the lowest yield of any variety was 28 busheis per acre, and the highest average yield of another variety was 67 bushels. These results are interesting to the southwest, in that the average yield for wheat in all the United States is but a fraction over 13 bushels per acre.

The chemistry department is in possession of a cow's stomach, shipped from Lake Valley, N. M., to be tested for poison. A number of cattle, both on the range and those fed at home on hay and grain, have been dying from some unknown cause. The cause will be ferreted out by the experiment station if at all possible.

The soil physics department has received a valuable addition of apparatus for work in soils.

TEST WELL PROVES GUSHER NEAR BARD

Tucumcari, N. M., Nov. 5.—The test well, begun two weeks ago on the farm of E. O. Allred, at Bard City, this county, for the purpose of demonstrating the possibility of well irrigation in this neighborhood, has proved a complete success. The well, which is eight feet square, has been sunk 28 feet, where the strong flow of water has prevented the further digging for the present, until arrangements can be made to pump out the water. This is now boiling up through the sand and it is believed that when this sand is cleared away it will be found unnecessary to sink the well to a greater depth. Irrigation has been a serious study in this region for a long while, and especially since the Quay county fair of this month, which demonstrated what might be done here with the aid of a little water.

Several wagon loads of watermelons were marketed here from San Jon. The melons were picked before the frosts and stored in cellars, where it is said they will keep fresh until Christmas. Watermelons were plentiful in this section this year, but cantaloupes were scarcer. An effort will be made by some of the farmers this year, it is said, to overcome this want.

PREDICTS GREAT FUTURE FOR LAND

Plainview, Texas, Nov. 5.—H. W. Campbell, the scientific farmer, when here inspecting his demonstration farm, said: "I believe the west Texas country will be dotted with millions of homes of prosperous farmers. The art of soil tillage will in time be so perfected that this region will be one of the best on earth for the farmer. I believe all this because of what I know as to the possibilities of farming under scientific methods in this soil and climate."

ADDITIONAL FARM NEWS ON NEXT PAGE.

FORMER KENT MAN WINS A BRIDE IN FORT WORTH.

Kent, Tex., Nov. 5.—Cards have been received at Kent announcing the approaching marriage of Joseph Reynolds and Miss Mary Wortham, of Fort Worth. Mr. Reynolds was a resident of Kent for several years. Miss Wortham was a summer visitor at the "X" ranch and made many friends here.

Mrs. Mollie Crow and Mrs. I. V. McElroy were hostesses at a most enoyable Hallowe'en party. Utilizing in every conceivable way the symbols of witchcraft and mystery, the decorated the house. A tempting luncheon was served. Those present were: Misses Nora Morris, Jewell Wright, Vassie Strong, Mary and Lizzie McElroy, Josie and Gussie Moore and Tot Wright; Messrs. Earl and Curtis McElroy, Jim and Chilton Moore, Horace Pearson, Ed Wells, Lloyd and Dean Earp, Chester Morris Lee and Clint Wright, Mr. and Mrs. Earp, Mr. and Mrs. Wright.

Rev. E. A. Miller, the Presbyterian pastor of Pecos, will fill his monthly appointment in Kent Sunday.

WORK IS COMMENCED ON TABERNACLE FOR BULGIN

Work has begun on the Bulgin tabernacle, where the meetings will be held, beginning Nov. 13. The tabernacle is being erected on the Bassett lots on Mills street. The executive committee which is arranging for the revival meetings held a meeting and luncheon Friday noon.

J. P. McKellar, an operator in the G. H. dispatcher's office, has gone to Augusta, Ga., having been called there by news of the death of a relative.